

open to some objections, which, however, may be more theoretical than practical. From his observations on plants grown in the absence of certain salts, he draws conclusions as to the rôle of a particular element—a time-honored but nevertheless unsafe process. Some of these observations coincide with those of earlier observers, and others are to be added to the long list of specific effects previously recorded after like experiments. We cannot enumerate the results in detail. Assuming REED's and all others as valid, no one is yet in a position to interpret this immense mass of data, many of them conflicting, and to frame any generalizations.

In his discussion REED clearly recognizes that the elements may either enter into the composition of some organ or substance in the cell, or without doing this permanently may act as catalysers, or in some other way may condition certain reactions. It is the varied possibilities within these categories that render useless at present all conclusions regarding the rôle of an element. The causal nexus is too intricate to be analyzed until far more knowledge of cell chemistry is available.—C. R. B.

Respiration and potassium cyanid.—Incited by the studies of animal physiologists on the effect of hydrocyanic acid and cyanids upon animal respiration, SCHROEDER set out to determine the effect of potassium cyanid upon the respiration of *Aspergillus niger*.¹⁷ Of course "respiration" here means the intake of O_2 and the output of CO_2 , processes which are quite independent of one another, and SCHROEDER's results furnish further evidence, if any were needed, of this independence. Such investigations can hardly yield, as the author hopes, satisfactory "conclusions as to the chemism of vital functions," until it is possible to make a much more exact analysis of the fixation of O_2 and the evolution of CO_2 , than is yet possible. Enough is known regarding the diverse sources of CO_2 , however, to minify the value of superficial researches upon such obscure phenomena. The investigations themselves are extensive and thorough enough, but they necessarily deal with superficial phenomena.

SCHROEDER finds both the fixation of O_2 and the evolution of CO_2 strikingly reduced by potassium cyanid. The production of CO_2 is practically stopped, but the consumption of oxygen is not. The author is uncertain "whether this small intake of O_2 is to be considered as a vital process, or a purely chemical phenomenon," a phrase which indicates an unfortunate state of mind regarding "vital" processes. He does not think that the cessation of the evolution of CO_2 is a valid mark of death. (Obviously not, since it is well known that neither its evolution nor cessation has any definite relation to death.) The further distinctions which he makes between the action of HCN on the respiratory process "as a primary action . . . and not as a phenomenon of death," seem quite invalid in view of our ignorance of the details of dissimilation.—C. R. B.

¹⁷ SCHROEDER, H., Ueber den Einfluss des Cyankaliums auf die Atmung von *Aspergillus niger*, nebst Bemerkungen über die Mechanik der Blausäure-Wirkung. Jahrb. Wiss. Bot. 44:409-481. figs. 2. 1907.